AFA

PATENT
Customer No. 39,878
Attorney Docket No. 0003.0038

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:	)	
	)	
Wolfgang HEIMBERG et al.	)	Group Art Unit: 1743
	)	
Application No.: 10/089,136	)	Examiner: Natalia A. Levkovich
	)	
Filed: December 23, 2002	)	
	)	
For: DEVICE FOR THE CARRYING OUT OF CHEMICAL OR BIOLOGICAL REACTIONS	)	

Commissioner for Patents
Washington, DC 20231

Sir:

TRANSMITTAL OF APPEAL BRIEF (37 C.F.R. 1.192)

Transmitted herewith in triplicate is the APPEAL BRIEF in this application with respect to the Notice of Appeal filed on March 28, 2006.

This application is on behalf of

☐ Small Entity ☒ Large Entity

Pursuant to 37 C.F.R. 1.17(f), the fee for filing the Appeal Brief is:

☐ $250.00 (Small Entity)

☒ $500.00 (Large Entity)

TOTAL FEE DUE:

Notice of Appeal Fee	$NA
Extension Fee (if any)	$NA
Total Fee Due	$500.00

☒ Enclosed is a check for $500.00 to cover the above fees.

PETITION FOR EXTENSION. If any extension of time is necessary for the filing of this Appeal Brief, and such extension has not otherwise been requested, such an extension is hereby requested, and the Commissioner is authorized to charge necessary fees for such an extension to our Deposit Account No. 50-2961. A duplicate copy of this paper is enclosed for use in charging the deposit account.

Dated: June 12, 2006

By: Barbara A. Fisher
Barbara A. Fisher
Reg. No. 31,906

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPEAL BRIEF

In re Application of	: Wolfgang HEIMBERG et al.	Confirmation No.:	2520
Application Number	: 10/089,136		
Filed	: December 23, 2002		
Title	: DEVICE FOR THE CARRYING OUT OF CHEMICAL OR BIOLOGICAL REACTIONS		
TC/Art Unit	: 1743		
Examiner:	: Natalia A. Levkovich		
Docket No.	: 0003.0038		
Customer No.	: **39878**		

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

APPEAL BRIEF

In re Application of	: Wolfgang HEIMBERG et al.	Confirmation No.:	2520
Application Number	: 10/089,136		
Filed	: December 23, 2002		
Title	: DEVICE FOR THE CARRYING OUT OF CHEMICAL OR BIOLOGICAL REACTIONS		
TC/Art Unit	: 1743		
Examiner:	: Natalia A. Levkovich		
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
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In re Application of	: Wolfgang HEIMBERG et al.	Confirmation No.:	2520
Application Number	: 10/089,136		
Filed	: December 23, 2002		
Title	: DEVICE FOR THE CARRYING OUT OF CHEMICAL OR BIOLOGICAL REACTIONS		
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Examiner:	: Natalia A. Levkovich		
Docket No.	: 0003.0038		
Customer No.	: **39878**		

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

APPEAL BRIEF UNDER 37 C.F.R. § 1.192

Pursuant to the provisions of 37 C.F.R § 1.191-1.198, this is a Brief on Appeal of the final rejection of claims 19-52, set forth in the Final Office Action dated December 29, 2005 and Notice of Panel Decision from Pre-appeal Brief Review mailed on May 10, 2006. A Notice of Appeal was filed on March 28, 2006.

Please find attached hereto a check in the amount of $500.00 for the Appeal Brief fee set forth in 37 C.F.R. § 1.17(f).

I. Real Party in Interest

The real party in interest is Applera Corporation, a corporation of Delaware, by virtue of Assignment duly filed at Reel 016182, Frame 0427.

II. Related Appeals and Interferences

There are no related appeals or interferences known to the assignee which will directly affect or be directly affected by or have a bearing on the Board's decision on this Appeal.

III. Status of Claims

Claims 19-52 are pending in this application. Claims 1-18 have been cancelled. Claims 19-52 are rejected. No claims are currently allowed. The claims on appeal (19-52) are set forth in the attached Appendix.

IV. Status of Amendments

The Pre-Appeal Brief Request for Review filed on March 28, 2006 has been considered but indicates that the application remains under appeal because there is at least one actual issue for Appeal.

V. Summary of Invention

A device for carrying out chemical or biological reactions comprises:

a reaction vessel receiving element (9), wherein the reaction vessel receiving element is configured to receive one microtiter plate (see FIGS. 1-4; page 7, lines 4-7; page 10, line 21; and page 15, lines 4-9);

two or more heating devices (7) for heating the reaction vessel receiving element (page 7, lines 4-7); and

a cooling device (6) for cooling the reaction vessel receiving element (page 7, lines 4-7),

wherein a) the reaction vessel receiving element (9) is divided into several segments (8), wherein each segment receives a portion of the microtiter plate (see page 7, lines 14-21), b) each segment is assigned one of the heating devices (7), wherein the heating devices may be actuated independently of one another (see page 8, lines 28-29; page 9, lines 24-26; and page 13, lines 9-10), and c) the individual segments are thermally decoupled in such a way that different temperature levels may be set and maintained in two adjacent segments (distance d, and page 7, lines 23-25).

In a further characterization, a device for carrying out chemical or biological reactions comprises:

a reaction vessel receiving element (9), wherein the reaction vessel receiving element is configured to receive one microtiter plate (see FIGS. 1-4; page 7, lines 4-7; page 10, line 21; and page 15, lines 4-9);

a heating device (7) for heating the reaction vessel receiving element (page 7, lines 4-7); and

two or more cooling devices (6) for cooling the reaction vessel receiving element (see page 8, lines 28-29; page 9, lines 24-26; and page 13, lines 9-10),

wherein a) the reaction vessel receiving element (9) is divided into several segments (8), wherein each segment receives a portion of the microtiter plate (see page 7, lines 14-21), b) each segment is assigned one of the cooling devices, wherein the cooling devices may be actuated independently of one another (see page 8, lines 2-5), and c) the individual segments are thermally decoupled in such a way that different temperature levels may be set and maintained in two adjacent segments (distance d, and page 7, lines 23-25).

VI. Issues (Grounds of Rejection)

(A) Whether claims 19-52 recite patentable subject matter under 35 U.S.C. §103(a) over applied references of U.S. Patent No. 5,601,141 to *Gordon et al.* in view of U.S. Patent No. 6,933,370 to *Yasuda et al.*

VII. Argument

(A) The Rejection under 35 U.S.C. § 103(a) of claims 19-52 as being unpatentable over *Gordon et al.* in view of *Yasuda et al.* is improper and should be Reversed.

At the outset, Appellants respectfully submit that the Examiner failed to properly identify U.S. Patent No. 5,819,842 (*Potter et al.*) in the rejection combination above, and appears to rely on this reference in discussing a rejection of the claims. Correction and/or clarification is requested.

Claims 19 and 51

Each of independent claims 19 and 51 are directed to a device for carrying out chemical or biological reactions. The devices include, *inter alia*, a reaction vessel receiving element, wherein the reaction vessel receiving element is configured to receive one microtiter plate. The claims further recite that the reaction vessel receiving element is divided into several segments, wherein each segment comprise a portion of the microtiter plate. Further, in claim 19, each segment is assigned one of the heating devices, and the heating devices may be actuated independently of one another. In claim 51, each segment is assigned one of the cooling devices, and the cooling devices may be actuated independently of one another. The claims also recite that the individual segments are thermally decoupled in such a way that different temperatures levels may be set and maintained in two adjacent segments.

In contrast, *Gordon et al.* do not recognize a subdivision of a microtiter plate and instead disclose sixteen reaction vessel receiving elements, referred to as "sample plates" 14a. Each of the sixteen sample plates can receive one standard microtiter

plate. (*Gordon et al.*, Fig. 1; col. 3, lines 31-32; col. 4, lines 3-6; and col. 4, lines 17-20.) This reference fails to disclose or suggest that any of the sixteen sample plates can be divided into segments. The Examiner applied *Yasuda et al.* as disclosing a "sample plate having means for individual heating of specific areas of a single substrate 13" at Figures 3-4 and col. 7, lines 5-60. (*See* Office Action, page 3, lines 6-8). The alleged "sample plate" disclosed by *Yasuda et al.*, however, is a DNA chip (*Yasuda et al.*, col. 1, lines 10-27) having a plurality of target polynucleotide hybridization areas (*Id.*, col. 7, lines 2-6). The DNA chip of *Yasuda et al.* has dimensions of about 1 micrometer by 1 micrometer in size (*Id.*, col. 4, line 60), more than six orders of magnitude smaller than a standard microtiter plate which is about 5 inches by 3 inches. Moreover the disclosed DNA chip uses single stranded-oligonucleotides (about one twenty five thousandth of an inch long) as probes to hybridize with a target polynucleotide (*Id.*, col. 4, lines 61 to col. 5, line 2). Appellants submit that the DNA chip of *Yasuda et al.* is not and does not suggest a reaction vessel receiving element for receiving a microtiter plate. Thus, neither *Gordon et al.* nor *Yasuda et al.* disclose or suggest that the reaction vessel receiving element, which receives the microtiter plate, can be divided into several segments as recited in claims 19 and 51 of the present application.

Accordingly, it is Appellants position that *Yasuda et al.* merely perpetuates the modular configuration of *Gordon et al.* and the combination fails to teach or suggest a segmented reaction vessel receiving element, wherein each segment receives a portion of the one microtiter plate.

It is further respectfully submitted that the Examiner has not supplied a motivation to combine the applied references. In particular, the Examiner did not

identify any particular reason, supported by the applied references, why one of ordinary skill in the art at the time of the invention would have been motivated to change any of the sixteen reaction vessel receiving elements that each receives one standard microplate, as disclosed by *Gordon et al.* to a reaction vessel receiving element that is segmented and receives one microplate.

Instead, the Examiner only generally alleged that the motivation for the proposed modification of the applied references was "to provide more flexibility (in terms of wider scalability), and, consequently, to improve commercial validity of the apparatus." (Office Action at page 3, lines 14-20). Appellants submit that neither of these reasons is supported anywhere in the applied references or even alleged to be supported in the references. Accordingly, the combination should not have been made by the Examiner at the outset.

Appellants submit that claim 19 is in condition for allowance, as are claims 20-50 at least by virtue of their dependency from allowable claim 19. Appellants also submit that claim 51 is in condition for allowance, as is claim 52 at least by virtue of its dependency from allowable claim 51.

Claims 21 and 22

Claims 21 and 22 are directed to the further characterization of the reaction vessel receiving elements such that the segments thereof are each comprised of a base plate with one or more tubular, thin-walled reaction vessel holders, which form one piece together with the base plate.

Appellants respectfully submit that the subject matter of claims 21 and 22 are lacking in either of *Gordon et al.* or *Yasuda et al.* Further, the Examiner has failed to

point out where this claimed subject matter would be found in the references. To the contrary, the modules of *Gordon et al.* are only treated as single modules for treatment, and the "areas" of *Yasuda et al.* are incapable of functioning as a container at the outset. Thus, the Examiner has only presented a single "reaction vessel" for each "segment".

Accordingly, Appellants submit that claims 21 and 22 are patentable on their own merits and the rejection with respect thereto should be Reversed.

Claims 39 and 40

Each of claims 39 and 40 recite that the side edges of the segments are downwards-facing hook elements by which they rest on ties. The references applied by the Examiner fail to teach or suggest such a securement of components.

Accordingly, Appellants submit that claims 39 and 40 are patentable on their own merits and the rejection with respect thereto should be Reversed.

Claims 47 and 48

Each of claims 47 and 48 are directed to the control unit actuating only a part of the segments, wherein the segments have side edges, and the segments adjoining the side edges of an actuated segment are not actuated.

The references applied by the Examiner fail to teach or suggest such a selective actuation of either the modules or plates disclosed.

Accordingly, Appellants submit that claims 47 and 48 are patentable on their own merits and the rejection with respect thereto should be Reversed.

Claims 49 and 50

Each of claims 49 and 50 are directed to an operating mode wherein the segments are so actuated that the temperature difference between adjacent segments is less than a predetermined temperature difference (ΔT).

The references applied by the Examiner do not teach or suggest controlling an applied temperature to be within a predetermined difference.

Accordingly, Appellants submit that claims 49 and 50 are patentable on their own merits and the rejection with respect thereto should be Reversed.

In view of the above, Appellants respectfully request that the Honorable Board of Patent Appeals and Interferences Reverse the rejection of claims 19-52 under 35 U.S.C. § 103(a).

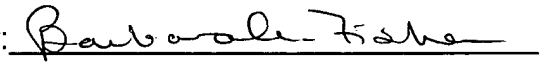
VIII. Conclusions

Appellants respectfully request Reversal of the outstanding rejection in the present application.

To the extent any further extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this Appeal Brief; such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 50-2961.

Respectfully submitted,

Dated: June 12, 2006

By: 

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VIII. Claims Appendix

19. Device for carrying out chemical or biological reactions comprising:

a reaction vessel receiving element, wherein the reaction vessel receiving element is configured to receive one microtiter plate;

two or more heating devices for heating the reaction vessel receiving element; and

a cooling device for cooling the reaction vessel receiving element,

wherein a) the reaction vessel receiving element is divided into several segments, wherein each segment receives a portion of the microtiter plate, b) each segment is assigned one of the heating devices, wherein the heating devices may be actuated independently of one another, and c) the individual segments are thermally decoupled in such a way that different temperature levels may be set and maintained in two adjacent segments.

20. Device according to claim 19, wherein each segment of the reaction vessel receiving element is assigned a cooling device, wherein the cooling devices may be actuated independently of one another.

21. Device according to claim 19, wherein the segments of the reaction vessel receiving element are each comprised of a base plate with one or more tubular, thin-walled reaction vessel holders, which form one piece together with the base plate.

22. Device according to claim 20, wherein the segments of the reaction vessel receiving element are each comprised of a base plate with one or more tubular, thin-walled reaction vessel holders, which form one piece together with the base plate.

23. Device according to claim 19, wherein the individual segments are thermally decoupled by means of an air gap formed between adjacent segments.

24. Device according to claim 22, wherein the individual segments are thermally decoupled by means of an air gap formed between adjacent segments.

25. Device according to claim 19, wherein the individual segments are thermally decoupled by means of a gap, formed between adjacent segments, in which a thermal insulator is inserted.

26. Device according to claim 24, wherein the individual segments are thermally decoupled by means of a gap, formed between adjacent segments, in which a thermal insulator is inserted.

27. Device according to claim 19, wherein each of the heating devices has a Peltier element, wherein in each case one segment of the reaction vessel receiving element is assigned a Peltier element, and the Peltier elements are thermally coupled to the respective segments.

28. Device according to claim 26, wherein each of the heating devices has a Peltier element, wherein in each case one segment of the reaction vessel receiving element is assigned a Peltier element, and the Peltier elements are thermally coupled to the respective segments.

29. Device according to claim 19, wherein the cooling devices comprise a Peltier element and/or a heat exchanger, wherein in each case one segment of the reaction vessel receiving element is assigned a Peltier element and/or a heat exchanger.

30. Device according to claim 29, wherein the cooling devices comprise a Peltier element and/or a heat exchanger, wherein in each case one segment of the reaction vessel receiving element is assigned a Peltier element and/or heat exchanger.

31. Device according to claim 29, wherein the heat exchanger is provided with cooling ducts through which a fluid may flow, wherein the fluidic flow of individual heat exchangers may be controlled independently of one another.

32. Device according to claim 30, wherein the heat exchanger is provided with cooling ducts through which a fluid may flow, wherein the fluidic flow of individual heat exchangers may be controlled independently of one another.

33. Device according to claim 31, wherein that the fluid is a cooling fluid, in particular water.

34. Device according to claim 32, wherein that the fluid is a cooling fluid, in particular water.

35. Device according to claim 19, wherein the reaction vessel receiving element is divided into at least four segments.

36. Device according to claim 34, wherein the reaction vessel receiving element is divided into at least four segments.

37. Device according to claim 19, wherein the individual segments each have the same number of recesses.

38. Device according to claim 36, wherein the individual segments each have the same number of recesses.

39. Device according to claim 19, wherein on their side edges the segments have downwards-facing hook elements by which they rest on ties.

40. Device according to claim 38, wherein on their side edges the segments have downwards-facing hook elements by which they rest on ties.

41. Device according to claim 19, wherein each segment is assigned a temperature sensor with which the temperature of the segment concerned is sensed, with the temperature of the segment being controlled on the basis of the temperatures sensed by the individual sensors.

42. Device according to claim 40, wherein each segment is assigned a temperature sensor with which the temperature of the segment concerned is sensed, with the temperature of the segment being controlled on the basis of the temperatures sensed by the individual sensors.

43. Device according to claim 19, wherein each segment is assigned one or more temperature equalisation elements.

44. Device according to claim 42, wherein each segment is assigned one or more temperature equalisation elements.

45. Device according to claim 19, wherein it has a control unit to actuate the heating device and the cooling device, wherein the control unit is so designed that the cooling devices of the individual segments may be actuated individually.

46. Device according to claim 44, wherein it has a control unit to actuate the heating device and the cooling device, wherein the control unit is so designed that the cooling devices of the individual segments may be actuated individually.

47. Device according to claim 45, wherein in one operating mode the control unit actuates only a part of the segments, wherein the segments have side edges, and the segments adjoining the side edges of an actuated segment are not actuated.

48. Device according to claim 46, wherein in one operating mode the control unit actuates only a part of the segments, wherein the segments have side edges, and the segments adjoining the side edges of an actuated segment are not actuated.

49. Device according to claim 45, wherein in one operating mode the segments are so actuated that the temperature difference between adjacent segments is less than a predetermined temperature difference (ΔT).

50. Device according to claim 48, wherein in one operating mode the segments are so actuated that the temperature difference between adjacent segments is less than a predetermined temperature difference (ΔT).

51. Device for carrying out chemical or biological reactions comprising:

a reaction vessel receiving element, wherein the reaction vessel receiving element is configured to receive one microtiter plate;

a heating device for heating the reaction vessel receiving element; and

two or more cooling devices for cooling the reaction vessel receiving element,

wherein a) the reaction vessel receiving element is divided into several segments, wherein each segment receives a portion of the microtiter plate, b) each segment is assigned one of the cooling devices, wherein the cooling devices may be actuated independently of one another, and c) the individual segments are thermally decoupled in such a way that different temperature levels may be set and maintained in two adjacent segments.

52. Device according to claim 51, wherein each segment of the reaction vessel receiving element is assigned a heating device, wherein the heating devices may be actuated independently of one another.

IX. Evidence Appendix

NONE

X. Related Proceedings Appendix

None.